NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

imagery analysis report

Probable Ionospheric Heater Antenna Under Construction, Vasilsursk Electronics Facility, USSR (TSR)

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PROBABLE IONOSPHERIC HEATER ANTENNA UNDER CONSTRUCTION VASILSURSK ELECTRONICS FACILITY, USSR (TSR)

1. (TSR) A probable ionospheric heater antenna is under construction in the USSR, 60 nautical miles east-southeast of Gorkiy at Vasilsursk Electronics Facility [ ] Figure 1). The probable ionospheric heater antenna consists of 169 16-meter-high masts arranged in 13 rows of 13 masts spaced 25 meters apart. The antenna elements have not yet been installed. Feedlines and feedline supports are under construction at the west end of the array. Five additional masts that are not part of the geometric pattern have also been erected, and numerous masts are on the ground. Additional electronics equipment at the facility consists of a SHOCK SING radar without a feed at the north corner of the array, a [ ] diameter parabolic dish antenna, and a [ ] mast. Support for the facility consists of one administration building, one control building, one transformer building under construction, eight support buildings, and four tents. An electric substation, dedicated to the facility, is 400 meters to the west. The substation was constructed between [ ]

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2. (TSR) Tree clearing for the ionospheric heater was first observed in July 1976; by October 1976 six rows of eight masts were lying on the ground. By February 1978 the 48 masts had been erected, and tree clearing for more masts was underway. The array had been enlarged to its present size of 169 masts by [ ]

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[ ]

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4. (TSR) The presence of the SHOCK SING radar at this facility cannot be explained, as it is usually used as an early warning radar. The SHOCK SING radar has been present since at least December 1974. However, previous imagery was not of sufficient interpretability to determine the presence or absence of the antenna feed.

5. (S/WNINTEL) The [ ] dish antenna is probably an ionospheric sounding antenna.

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REFERENCE

1. CIA/DCD, [ ] *Heating of Ionosphere for Passage of Communications Signal* 2 Oct 74 (SECRET [ ]

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(S) Comments and queries regarding this report are welcome. They may be directed to [ ] Soviet Strategic Forces Division, Imagery Exploitation Group, NPIC, on [ ]

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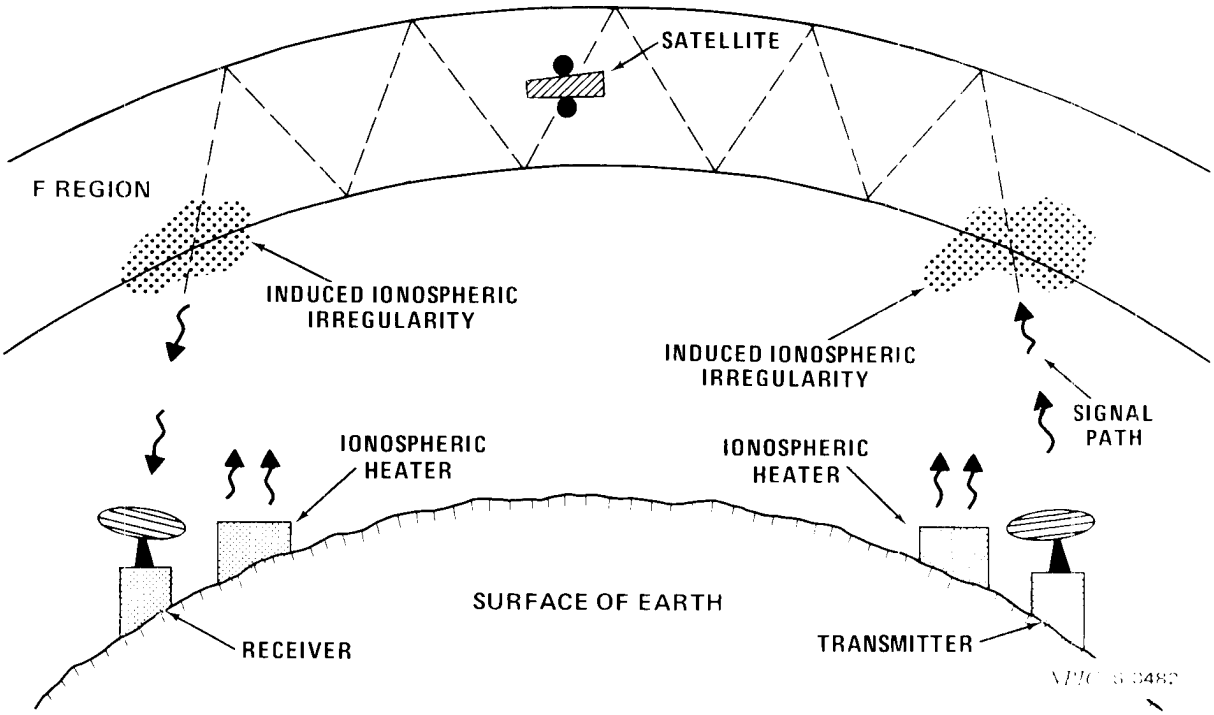

FIGURE 2. CONCEPTUAL DRAWING OF THE WAY IN WHICH AN IONOSPHERIC HEATER COULD BE USED IN HF COMMUNICATIONS. The use of an ionospheric heater would enable the Soviets to communicate with satellites that are over the horizon (and therefore out of sight of normal antennas) and to communicate securely over long distances by HF.

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